

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of claims:

1-10. (Cancelled)

11. (Currently Amended) ~~The polymer according to claim 9~~ A polymer, comprising:

(i) at least one non-brominated comprising a specialty monomer; and

(ii) at least one brominated monomer having the structure A-B-C, wherein

A is a phenyl substituted with 3-5 bromine atoms,

B is a C₁ to C₄ alkyl optionally substituted with 1 to 8 bromine atoms, and

C is an acrylic or methacrylic group,

wherein the polymer comprises a bromine content of 20% (w/w) or more, and the polymer comprises at least one non-brominated monomer having a Tg lower than 0°C or the polymer has a Tg lower than 0°C, and

wherein said specialty monomer is selected from sodium salt of 2-acrylamido-2-methyl propane sulphonic acid, betal-carboxymethyl acrylate, ammonium allyloxypolyethoxy(10)sulphate, laurethoxy(23)methacrylate, laurethoxy(25)methacrylate, allyl methacrylate, and hydroxyl ethyl methacrylate, glycidyl methacrylate, ammonium salt of α -sulfo- ω -[1-(Alkoxy)methyl-2-(2-propenyloxy)ethoxy]- ω -hydro-poly(oxy-1,2,-ethanediyl), ammonium salt of α -[1-(Alkoxy)methyl-2-(2-propenyloxy)ethoxy]- ω -hydro-poly(oxy-1,2,-

ethanediyl), ditrimethylo propane tetraacrylate, ethoxilated trimetholopropane triacrylate, and trimethylo propane acrylate.

12-17. (Cancelled)

18. (Currently Amended) A mixture₁ comprising: [[a]]

the polymer according to claim 18; and
more than one surface active agent.

19. (Previously Presented) The mixture according to claim 18, further comprising antimony oxide.

20. (Previously Presented) An aqueous dispersion, comprising:

a polymer comprising a bromine-containing monomer having the structure A-B-C, wherein

A is a phenyl, substituted with 3-5 bromine atoms,

B is a C₁ to C₄ alkyl optionally substituted with 1 to 8 bromine atoms, and

C is an acrylic or methacrylic group; and

at least one non-brominated monomer,

wherein the polymer comprises a bromine content of at least 20 % (w/w) and the dispersion comprises a solid content of at least 40%.

21. (Previously Presented) The aqueous dispersion according to claim 20, wherein said phenyl is substituted with 5 bromine atoms.

22. (Previously Presented) The aqueous dispersion according to claim 20, wherein said alkyl is CH₂.

23. (Previously Presented) The aqueous dispersion according to claim 20, wherein said brominated monomer is PBBMA.

24. (Previously Presented) The aqueous dispersion according to claim 20, wherein said polymer comprises:

at least one non-brominated monomer; and

at least one brominated monomer having the structure A-B-C, wherein

A is a phenyl substituted with 3-5 bromine atoms,

B is a C₁ to C₄ alkyl optionally substituted with 1 to 8 bromine atoms, and

C is an acrylic or methacrylic group,

wherein the polymer comprises a bromine content of 20% (w/w) or more, and the polymer comprises at least one non-brominated monomer having a T_g lower than 0°C or the polymer has a T_g lower than 0°C.

25. (Previously Presented) The aqueous dispersion according claim 20, further comprising at least two different surface active agents.

26. (Currently Amended) [[An]] The aqueous dispersion according to claim 25, wherein one or more of said surface active agents is an alkyl aryl.

27. (Previously Presented) The aqueous dispersion according to claim 20, further comprising antimony oxide.

28. (Previously Presented) The aqueous dispersion according to claim 20, consisting essentially of solid particles in aqueous solution, wherein the size of said solid particles is less than 2000nm.

29. (Previously Presented) The aqueous dispersion according to claim 28, wherein said size is between 50 and 1000nm.

30. (Previously Presented) The aqueous dispersion according to claim 29, wherein said size is between 80 and 400 nm.

31. (Previously Presented) The aqueous dispersion according to claim 20, wherein said polymer has a density of 1.2g/cc or more.

32. (Previously Presented) The aqueous dispersion according to claim 20, wherein said polymer has a molecular weight of 500,000 and above.

33. (Previously Presented) The aqueous dispersion according to claim 32, wherein said polymer has a molecular weight of 1,000,000 or above.

34. (Previously Presented) The aqueous dispersion according to claim 20, which is stable for at least six months in -7-35°C with no direct sunlight.

35. (Previously Presented) The aqueous dispersion according to claim 20, which is stable for at least six months in 5 to 35°C with no direct sunlight.

36. (Previously Presented) A product comprising antimony oxide and a polymer comprising at least one bromine-containing monomer and at least one non-brominated monomer, wherein said product is fire-retardant.

37. (Previously Presented) The product according to claim 36, wherein said polymer, comprises:

at least one non-brominated monomer; and

at least one brominated monomer having the structure A-B-C, wherein

A is a phenyl substituted with 3-5 bromine atoms,

B is a C₁ to C₄ alkyl, optionally substituted with 1 to 8 bromine atoms, and

C is an acrylic or methacrylic group,

wherein the polymer comprises a bromine content of 20% (w/w) or more, and the polymer comprises at least one non-brominated monomer having a T_g lower than 0°C or the polymer has a T_g lower than 0°C.

38. (Currently Amended) ~~The product according to claim 36, comprising~~ A fire-retardant product, comprising antimony oxide and a polymer comprising at least one bromine-containing monomer and at least one non-brominated monomer, a textile, said textile being printed, sprayed, or impregnated with an aqueous dispersion, comprising:

antimony oxide; and

a polymer comprising

a bromine-containing monomer having the structure A-B-C, wherein

A is a phenyl, substituted with 3-5 bromine atoms,

B is a C₁ to C₄ alkyl optionally substituted with 1 to 8 bromine atoms, and

C is an acrylic or methacrylic group; and

at least one non-brominated monomer;

wherein the polymer comprises a bromine content of at least 20 % (w/w) and the aqueous dispersion comprises a solid content of at least 40%.

39. (Previously Presented) The product according to claim 38, wherein said non-brominated monomer is hydrophobic.

40. (Previously Presented) The product according to claim 39, wherein said hydrophobic monomer is selected from the group consisting of butyl Acrylate, 2-ethyl hexyl acrylate, styrene, and styrene derivatives.

41. (Previously Presented) A method for fabricating a fire-retardant textile, comprising printing, spraying or impregnating a textile with an aqueous dispersion, according to claim 20.

42. (Previously Presented) A method for improving the hydrophobicity of a textile, comprising printing, spraying, or impregnating said textile with an aqueous dispersion according to claim 20.

43. (Previously Presented) The method according to claim 42, wherein the polymer dispersed in said dispersion comprises a hydrophobic non-brominated monomer.

44. (Previously Presented) The method according to claim 41, wherein said hydrophobic non-brominated monomer is selected from the group consisting of butyl Acrylate, 2-ethyl hexyl acrylate, and styrene.

45. (Previously Presented) A method for obtaining an aqueous dispersion of a co-polymer, comprising:

providing a second monomer that is at least partially dissolved in a first monomer comprising a brominated aromatic compound, and

polymerizing the first polymer and the second monomer in the presence of water and surfactants to obtain an aqueous dispersion of a co-polymer.

46. (Previously Presented) The method according to claim 45, wherein said brominated aromatic compound has the structure A-B-C, wherein A is a phenyl, substituted with 3-5 bromine atoms, B is a C₁ to C₄ alkyl, optionally substituted with one 1 to 8 bromine atoms, and C is an acrylic or methacrylic group.

47. (Previously Presented) The method according to claim 46 wherein the phenyl in said first monomer is substituted with 5 bromine atoms.

48. (Previously Presented) The method according to claim 46, wherein the alkyl in said first monomer is CH₂.

49. (Previously Presented) The method according to claim 45, wherein said first monomer is PBBMA.

50. (Previously Presented) The method according to claim 45, wherein said first monomer is a bromostyrene or a derivative thereof.

51. (Previously Presented) The method according to claim 45, wherein said second monomer is styrene or a styrene derivative.

52. (Previously Presented) The method according to claim 45, wherein the amount of said water is sufficient to obtain a dispersion having at least 40% solid content.

53. (Previously Presented) The method according to claim 45, wherein the ratio between said first monomer and non-brominated monomers is sufficient to obtain a polymer ~~has~~ having at least 20% (w/w) bromine content.

54. (Previously Presented) The method according to claim 45, wherein at least one of said surfactants is reactive, and the obtained polymer comprises said first monomer, said second monomer, and said reactive surfactant.

55. (Previously Presented) The method according to claim 45, wherein said first and second monomer react with at least one other monomer, such that the polymer obtained comprises said first monomer, said second monomer, and said at least one other monomer.

56. (Previously Presented) The method according to claim 55, wherein said at least one other monomer is a specialty monomer.

57. (Previously Presented) The method according to claim 56, wherein said specialty monomer is selected from monomers that are cross-linking, surface active, and adhesion promoting.

58. (Previously Presented) The method according to claim 56, wherein said specialty monomer is selected from the group consisting of N-(Hydroxymethyl)acrylamide, sodium salt of 2-acrylamido-2-methyl propane sulphonic acid, betal-carboxymethyl acrylate, ammonium allyloxypolyethoxy(10)sulphate, laurethoxy(23)methacrylate, laurethoxy(25) methacrylate, allyl methacrylate, and hydroxyl ethyl methacrylate, glycidyl methacrylate, ammonium salt of α -sulfo- ω -[1-(Alkoxy)methyl-2-(2-propenyloxy)ethoxy]- ω -hydro-poly(oxy-1,2,-ethanediyl), ammonium salt of α -[1-(Alkoxy)methyl-2-(2-propenyloxy)ethoxy]- ω -hydro-poly(oxy-1,2,-ethanediyl).

59. (Previously Presented) The method according to claim 55, wherein said at least one other monomer is selected from the group consisting of acrylic monomers and vinyl acetate.

60. (Previously Presented) The method according to claim 59, wherein said acrylic monomer is selected from the group consisting of acrylamide, acrylic acid, acrylonitrile, butyl acrylate, ethyl acrylate, 2-ethyl hexyl acrylate, and methyl methacrylate.

61. (Previously Presented) The method according to claim 55, wherein said at least one other monomer is of the formula $R_1CH=CR_2C(O)A$, wherein

A is selected from the group consisting of OR_3 , NR_3R_4 , and CN; and

R_1 and R_2 are each independently selected from H and alkyl, said alkyl being linear or branched, and

R_3 and R_4 are each independently selected from H, alkyl, alkenyl, alkoxy, polyalkoxy, alkanol, or ether, each of which may be linear or branched, substituted or unsubstituted.

62. (Previously Presented) The method according to claim 61, wherein the carbon-containing R groups have between 1 and 15 carbons.

63. (Previously Presented) The method according to claim 62, wherein the alkyl groups have between 1 and 4 carbon atoms.

64. (Previously Presented) The method according to claim 45, comprising:

- (i) dissolving said first monomer in a first liquid to obtain a solution, wherein said first liquid includes said second monomer optionally together with surfactants;
- (ii) mixing said solution with water and optionally also with surfactants to obtain a stable emulsion comprising water, surfactants, and said first monomer; and
- (iii) reacting said stable emulsion with an initiator to obtain an aqueous dispersion of a co-polymer containing at least said first monomer and said second monomer.

65. (Previously Presented) The method according to claim 64, wherein said first liquid does not comprise surfactants and in (ii) said solution is mixed with water and surfactants.

66-68. (Cancelled)

69. (Currently Amended) ~~The polymer according to claim 68,~~ A polymer, comprising:

(i) at least one non-brominated monomer comprising a specialty monomer; and

(ii) at least one brominated monomer having the structure A-B-C, wherein

A is a phenyl substituted with 3-5 bromine atoms,

B is a C₁ to C₄ alkyl optionally substituted with 1 to 8 bromine
atoms, and

C is an acrylic or methacrylic group,

wherein the polymer comprises a bromine content of at least 20% (w/w), and

wherein said specialty monomer is selected from the group consisting of sodium salt

of 2-acrylamido-2-methyl propane sulphonic acid, betal-carboxymethyl acrylate, ammonium allyloxypolyethoxy(10)sulphate, laurethoxy(23)methacrylate, laurethoxy(25) methacrylate, allyl methacrylate, and hydroxyl ethyl methacrylate, glycidyl methacrylate, ammonium salt of α -sulfo- ω -[1-(Alkoxy)methyl-2-(2-propenyloxy)ethoxy]- ω -hydro-poly(oxy-1,2,-ethanediyl), ammonium salt of α -[1-(Alkoxy)methyl-2-(2-propenyloxy)ethoxy]- ω -hydro-poly(oxy-1,2,-ethanediyl), ditrimethylo propane tetraacrylate, ethoxilated trimetholopropane triacrylate, and trimethylo propane acrylate.